2013

Deep Water Horizon Spill Appendix 1

Appendix Table 1-1. Methods, reporting levels, and laboratories used for chemical analysis for the Deepwater Horizon oil spill, Gulf of Mexico, 2010: organic contaminants in water.

[Method codes are from the National Water Information System (NWIS) database, and are defined in Table 1-6. **Abbreviations**: CASRN, Chemical Abstracts Services Registry Number; na, not applicable; NWQL, National Water Quality Laboratory, Denver, Colorado; OCRL, Organic Carbon Research Laboratory, Boulder, Colorado; pcode, parameter code from the U.S. Geological Survey NWIS database; TAL-CO, TestAmerica Laboratory, Denver, Colorado; TAL-FL, TestAmerica Laboratory, Pensacola, Florida; USGS, U.S. Geological Survey; µg/L, microgram per liter; mg/L, milligram per liter; ″, cell is identical to the cell immediately above]

Analyte	CASRN	Pcode	Laboratory	Method	Reporting level[1]	Units
1,1,1,2-Tetrachloroethane	630-20-6	77562	USGS NWQL	GCM66	0.04	µg/L
1,1,1-Trichloroethane	71-55-6	34506	TAL-FL	GCM25	0.5	µg/L
″	″	″	USGS NWQL	GCM66	0.03	″
1,1,2,2-Tetrachloroethane	79-34-5	34516	TAL-FL	GCM25	0.5	µg/L
″	″	″	USGS NWQL	GCM66	0.14	″
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	77652	TAL-FL	GCM25	0.5	µg/L
″	″	″	USGS NWQL	GCM66	0.034	″
1,1,2-Trichloroethane	79-00-5	34511	TAL-FL	GCM25	0.5	µg/L
″	″	″	USGS NWQL	GCM66	0.028–0.046	″
1,1-Dichloroethane	75-34-3	34496	TAL-FL	GCM25	0.5	µg/L
″	″	″	USGS NWQL	GCM66	0.044	″
1,1-Dichloroethene	75-35-4	34501	TAL-FL	GCM25	0.5	µg/L
″	″	″	USGS NWQL	GCM66	0.022	″
1,1-Dichloropropene	563-58-6	77168	USGS NWQL	GCM66	0.03–0.04	µg/L
1,2,3,4-Tetramethylbenzene	488-23-3	49999	USGS NWQL	GCM66	0.08–0.1	µg/L
1,2,3,5-Tetramethylbenzene	527-53-7	50000	USGS NWQL	GCM66	0.08	µg/L
1,2,3-Trichlorobenzene	87-61-6	77613	USGS NWQL	GCM66	0.06	µg/L
1,2,3-Trichloropropane	96-18-4	77443	USGS NWQL	GCM66	0.12	µg/L
1,2,3-Trimethylbenzene	526-73-8	77221	USGS NWQL	GCM66	0.06	µg/L
1,2,4-Trichlorobenzene	120-82-1	34551	TAL-FL	GCM75	0.5	µg/L
″	″	″	USGS NWQL	GCM57	0.26	″
″	″	″	″	GCM66	0.08	″
1,2,4-Trimethylbenzene	95-63-6	77222	USGS NWQL	GCM66	0.032	µg/L
1,2-Dibromo-3-chloropropane	96-12-8	82625	TAL-FL	GCM25	0.7	µg/L
″	″	″	USGS NWQL	GCM66	0.34–0.4	″
1,2-Dibromoethane	106-93-4	77651	TAL-FL	GCM25	0.5	µg/L
″	″	″	USGS NWQL	GCM66	0.028–0.05	″
1,2-Dichlorobenzene	95-50-01	34536	TAL-FL	GM025	0.5	µg/L
″	″	″	USGS NWQL	GCM57	0.2	″
″	″	″	″	GCM66	0.028	″
1,2-Dichloroethane	107-06-2	32103	TAL-FL	GCM25	0.5	µg/L
″	″	″	USGS NWQL	GCM66	0.08	″
1,2-Dichloropropane	78-87-5	34541	TAL-FL	GCM25	0.5	µg/L
″	″	″	USGS NWQL	GCM66	0.026	″
1,2-Diphenylhydrazine	122-66-7	82626	USGS NWQL	GCM55	0.3	µg/L
1,3,5-Trimethylbenzene	108-67-8	77226	USGS NWQL	GCM66	0.032	µg/L

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Analyte	CASRN	Pcode	Laboratory	Method	Reporting level[1]	Units
1,3-Dichlorobenzene	541-73-1	34566	TAL-FL	GCM75	0.54	µg/L
″	″	″	USGS NWQL	GCM57	0.22	″
″	″	″	″	GCM66	0.024	″
1,3-Dichloropropane	142-28-9	77173	USGS NWQL	GCM66	0.06	µg/L
1,4-Dichlorobenzene	106-46-7	34571	TAL-FL	GCM75	0.64	µg/L
″	″	″	USGS NWQL	GCM57	0.22	″
″	″	″	″	GCM66	0.026	″
2,2-Dichloropropane	594-20-7	77170	USGS NWQL	GCM66	0.06	µg/L
2,4,5-Trichlorophenol	95-95-4	77687	TAL-FL	GM025	1.3–4.0	µg/L
2,4,6-Trichlorophenol	88-06-2	34621	TAL-FL	GM025	1.2–3.7	µg/L
″	″	″	USGS NWQL	GCM56	0.34	″
2,4-Dichlorophenol	120-83-2	34601	TAL-FL	GM025	1.1–3.4	µg/L
″	″	″	USGS NWQL	GCM56	0.36	″
2,4-Dimethylphenol	105-67-9	34606	TAL-FL	GM025	1.7–5.1	µg/L
″	″	″	USGS NWQL	GCM56	0.8	″
2,4-Dinitrophenol	51-28-5	34616	TAL-FL	GM025	14–43.0	µg/L
″	″	″	USGS NWQL	GCM56	1.4	″
2,4-Dinitrotoluene	121-14-2	34611	TAL-FL	GM025	1.2–3.7	µg/L
″	″	″	USGS NWQL	GCM57	0.56	″
2,6-Dinitrotoluene	606-20-2	34626	TAL-FL	GM025	2.0–6.3	µg/L
″	″	″	USGS NWQL	GCM57	0.4	″
2-Chloronaphthalene	91-58-7	34581	TAL-FL	GM025	0.15–0.46	µg/L
″	″	″	USGS NWQL	GCM57	0.16	″
2-Chlorophenol	95-57-8	34586	TAL-FL	GM025	1.4–4.3	µg/L
″	″	″	USGS NWQL	GCM56	0.26	″
2-Chlorotoluene	95-49-8	77275	USGS NWQL	GCM66	0.028	µg/L
2-Ethyltoluene	611-14-3	77220	USGS NWQL	GCM66	0.032	µg/L
2-Methyl-4,6-dinitrophenol	534-52-1	34657	USGS NWQL	GCM56	0.76	µg/L
2-Methylnaphthalene	91-57-6	30194	TAL-FL	GM025	0.2–0.63	µg/L
2-Naphthylamine	91-59-8	78118	TAL-FL	GM025	1.4–4.3	µg/L
2-Nitrophenol	88-75-5	34591	TAL-FL	GM025	1.9–5.7	µg/L
″	″	″	USGS NWQL	GCM56	0.4	″
3,3′-Dichlorobenzidine	91-94-1	34631	TAL-FL	GM025	1.9–5.7	µg/L
″	″	″	USGS NWQL	GCM55	0.42	″
3-Chloropropene	107-05-1	78109	USGS NWQL	GCM66	0.08	µg/L
3-Nitroaniline	99-09-2	78300	TAL-FL	GM025	1.4–4.3	µg/L

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Analyte	CASRN	Pcode	Laboratory	Method	Reporting level[1]	Units
4-Bromophenyl phenyl ether	101-55-3	34636	TAL-FL	GM025	0.18–0.54	µg/L
″	″	″	USGS NWQL	GCM57	0.24	″
4-Chloro-3-methylphenol	59-50-7	34452	TAL-FL	GM025	1.9–6.0	µg/L
″	″	″	USGS NWQL	GCM56	0.55	″
4-Chloroaniline	106-47-8	30343	TAL-FL	GM025	1.8–5.4	µg/L
4-Chlorophenyl phenyl ether	7005-72-3	34641	TAL-FL	GM025	1.0–3.1	µg/L
″	″	″	USGS NWQL	GCM57	0.34	″
4-Chlorotoluene	106-43-4	77277	USGS NWQL	GCM66	0.042	µg/L
4-Isopropyltoluene	99-87-6	77356	USGS NWQL	GCM66	0.06	µg/L
4-Nitroaniline	100-01-6	30196	TAL-FL	GM025	1.9–5.7	µg/L
4-Nitrophenol	100-02-7	34646	TAL-FL	GM025	3.1–9.7	µg/L
″	″	″	USGS NWQL	GCM56	0.51	″
Acenaphthene	83-32-9	34205	TAL-FL	GM025	0.19–0.57	µg/L
″	″	″	USGS NWQL	GCM57	0.28	″
Acenaphthylene	208-96-8	34200	TAL-FL	GM025	0.14–0.43	µg/L
″	″	″	USGS NWQL	GCM57	0.3	″
Acetone	67-64-1	81552	TAL-FL	GCM25	3.5	µg/L
″	″	″	USGS NWQL	GCM66	3.4	″
Acetophenone	98-86-2	62811	TAL-FL	GM025	0.16–0.49	µg/L
Acrylonitrile	107-13-1	34215	USGS NWQL	GCM66	0.8	µg/L
Anthracene	120-12-7	34220	TAL-FL	GM025	0.17–0.51	µg/L
″	″	″	USGS NWQL	GCM57	0.39	″
Atrazine	1912-24-9	39630	TAL-FL	GM025	0.23–0.71	µg/L
Benzaldehyde	100-52-7	81554	TAL-FL	GM025	0.39–1.2	µg/L
Benzene	71-43-2	34030	TAL-CO	GCM25	0.065	µg/L
″	″	″	TAL-FL	GCM25	0.3–0.34	″
″	″	″	USGS NWQL	GCM66	0.026	″
Benzo[a]anthracene	56-55-3	34526	TAL-FL	GM025	0.16–0.49	µg/L
″	″	″	USGS NWQL	GCM57	0.26	″
Benzo[a]pyrene	50-32-8	34247	TAL-FL	GM025	0.19–0.57	µg/L
″	″	″	USGS NWQL	GCM57	0.33	″
Benzo[b]fluoranthene	205-99-2	34230	TAL-FL	GM025	0.19–0.6	µg/L
″	″	″	USGS NWQL	GCM57	0.3	″
Benzo[g,h,i]perylene	191-24-2	34521	USGS NWQL	GCM57	0.38	µg/L
Benzo[k]fluoranthene	207-08-9	34242	TAL-FL	GM025	0.35–1.1	µg/L
″	″	″	USGS NWQL	GCM57	0.3	″

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Analyte	CASRN	Pcode	Laboratory	Method	Reporting level[1]	Units
Benzyl *n*-butylphthalate	85-68-7	34292	TAL-FL	GM025	2.5–7.7	µg/L
″	″	″	USGS NWQL	GCM57	1.8	″
Biphenyl	92-52-4	64172	TAL-FL	GM025	0.19–0.57	µg/L
bis(2-chloroethyl)ether	111-44-4	34273	TAL-FL	GM025	1.9–5.7	µg/L
″	″	″	USGS NWQL	GCM57	0.3	″
bis(2-chloroisopropyl) ether	39638-32-9	34283	TAL-FL	GM025	1.9–5.7	µg/L
″	″	″	USGS NWQL	GCM57	0.14	″
bis-2-chloroethoxymethane	111-91-1	34278	TAL-FL	GM025	0.22–0.69	µg/L
″	″	″	USGS NWQL	GCM57	0.24	″
bis-2-ethylhexylphthalate	117-81-7	39100	TAL-FL	GM025	6.5–20	µg/L
″	″	″	USGS NWQL	GCM57	2.0	″
Bromobenzene	108-86-1	81555	USGS NWQL	GCM66	0.022	µg/L
Bromochloromethane	74-97-5	77297	USGS NWQL	GCM66	0.06	µg/L
Bromodichloromethane	75-27-4	32101	TAL-FL	GCM25	0.5	µg/L
″	″	″	USGS NWQL	GCM66	0.034	″
Bromoethene	593-60-2	50002	USGS NWQL	GCM66	0.12	µg/L
Bromomethane	74-83-9	34413	TAL-FL	GCM25	0.73–0.91	µg/L
″	″	″	USGS NWQL	GCM66	0.2	″
Caprolactam	105-60-2	64173	TAL-FL	GM025	1.9–5.7	µg/L
Carbazole	86-74-8	77571	TAL-FL	GM025	0.56–1.7	µg/L
Carbon disulfide	75-15-0	77041	TAL-FL	GCM25	0.5	µg/L
″	″	″	USGS NWQL	GCM66	0.04–0.08	″
Chlorobenzene	108-90-7	34301	TAL-FL	GCM25	0.5	µg/L
″	″	″	USGS NWQL	GCM66	0.016–0.026	″
Chloroethane	75-00-3	34311	TAL-FL	GCM25	0.63	µg/L
″	″	″	USGS NWQL	GCM66	0.06	″
Chloromethane	74-87-3	34418	TAL-FL	GCM25	0.53	µg/L
″	″	″	USGS NWQL	GCM66	0.14	″
Chrysene	218-01-9	34320	TAL-FL	GM025	0.27–0.83	µg/L
″	″	″	USGS NWQL	GCM57	0.33	″
cis-1,2-dichloroethene	156-59-2	77093	TAL-FL	GCM25	0.5	µg/L
″	″	″	USGS NWQL	GCM66	0.022	″
cis-1,3-dichloropropene	10061-01-5	34704	TAL-FL	GCM25	0.5	µg/L
″	″	″	USGS NWQL	GCM66	0.1	″
Cyclohexane	110-82-7	81570	TAL-FL	GCM25	0.5	µg/L
Dibenzo[a,h]anthracene	53-70-3	34556	TAL-FL	GM025	0.26–0.8	µg/L
″	″	″	USGS NWQL	GCM57	0.42	″

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Analyte	CASRN	Pcode	Laboratory	Method	Reporting level[1]	Units
Dibenzofuran	132-64-9	81302	TAL-FL	GM025	0.93–2.9	µg/L
Dibromochloromethane	124-48-1	32105	TAL-FL	GCM25	0.5	µg/L
″	″	″	USGS NWQL	GCM66	0.12	″
Dibromomethane	74-95-3	30217	USGS NWQL	GCM66	0.05	µg/L
Dichlorodifluoromethane	75-71-8	34668	TAL-FL	GCM25	0.79	µg/L
″	″	″	USGS NWQL	GCM66	0.1	″
Dichloromethane	75-09-2	34423	TAL-FL	GCM25	0.81–1.0	µg/L
″	″	″	USGS NWQL	GCM66	0.038–0.04	″
Diesel range organics	na	04585	TAL-FL	GCI01	40.0–50	µg/L
Diesel range organics (C10-C36)	na	63746	TAL-CO	GCI01	0.052–0.068	mg/L
Diethyl ether	60-29-7	81576	USGS NWQL	GCM66	0.08–0.1	µg/L
Diethyl phthalate	84-66-2	34336	TAL-FL	GM025	0.24–0.74	µg/L
″	″	″	USGS NWQL	GCM57	0.61	″
Diisopropyl ether	108-20-3	81577	USGS NWQL	GCM66	0.06	µg/L
Dimethyl phthalate	131-11-3	34341	TAL-FL	GM025	0.93–2.9	µg/L
″	″	″	USGS NWQL	GCM57	0.36	″
Di-*n*-butyl phthalate	84-74-2	39110	TAL-FL	GM025	0.29–0.89	µg/L
″	″	″	USGS NWQL	GCM57	2.0	″
Di-*n*-octyl phthalate	117-84-0	34596	TAL-FL	GM025	0.17–0.51	µg/L
″	″	″	USGS NWQL	GCM57	0.6	″
Dissolved organic carbon	na	00681	USGS OCRL	COMB4	0.7	mg/L
Ethyl methacrylate	97-63-2	73570	USGS NWQL	GCM66	0.14–0.2	µg/L
Ethyl methyl ketone	78-93-3	81595	TAL-FL	GCM25	2.4	µg/L
″	″	″	USGS NWQL	GCM66	1.6	″
Ethylbenzene	100-41-4	34371	TAL-CO	GCM25	0.1	µg/L
″	″	″	TAL-FL	GCM25	0.5	″
″	″	″	USGS NWQL	GCM66	0.036	″
Fluoranthene	206-44-0	34376	TAL-FL	GM025	0.13–0.4	µg/L
″	″	″	USGS NWQL	GCM57	0.3	″
Fluorene	86-73-7	34381	TAL-FL	GM025	0.14–0.43	µg/L
″	″	″	USGS NWQL	GCM57	0.33	″
Gasoline range organics	na	49892	TAL-CO	GCI02	4.0	µg/L
Gasoline range organics (C6–C10)	na	67990	TAL-FL	GC155	18.0–50	µg/L
Hexachlorobenzene	118-74-1	39700	TAL-FL	GM025	0.16–0.49	µg/L
″	″	″	USGS NWQL	GCM57	0.3	″
Hexachlorobutadiene	87-68-3	39702	USGS NWQL	GCM57	0.24	µg/L
″	″	″	″	GCM66	0.06–0.08	″

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Analyte	CASRN	Pcode	Laboratory	Method	Reporting level[1]	Units
Hexachlorocyclopentadiene	77-47-4	34386	TAL-FL	GM025	2.1–6.6	µg/L
″	″	″	USGS NWQL	GCM57	0.5	″
Hexachloroethane	67-72-1	34396	TAL-FL	GM025	1.1–3.4	µg/L
″	″	″	USGS NWQL	GCM57	0.24	″
″	″	″	″	GCM66	0.14–0.22	″
Indeno[1,2,3-cd]pyrene	193-39-5	34403	TAL-FL	GM025	0.22–0.69	µg/L
″	″	″	USGS NWQL	GCM57	0.38	″
Iodomethane	74-88-4	77424	USGS NWQL	GCM66	0.26	µg/L
Isobutyl methyl ketone	108-10-1	78133	TAL-FL	GCM25	1.8	µg/L
″	″	″	USGS NWQL	GCM66	0.32	″
Isophorone	78-59-1	34408	TAL-FL	GM025	0.54–1.7	µg/L
″	″	″	USGS NWQL	GCM57	0.26	″
Isopropylbenzene	98-82-8	77223	TAL-FL	GCM94	0.53	µg/L
″	″	″	USGS NWQL	GCM66	0.042	″
m- plus *p*-Cresol	65794-96-9	65195	TAL-FL	GM025	1.7–5.1	µg/L
m- plus *p*-Xylene	179601-23-1	85795	USGS NWQL	GCM66	0.08	µg/L
Methyl acetate	79-20-9	77032	TAL-FL	GCM25	2.1	µg/L
Methyl acrylate	96-33-3	49991	USGS NWQL	GCM66	0.56–0.8	µg/L
Methyl acrylonitrile	126-98-7	81593	USGS NWQL	GCM66	0.26	µg/L
Methyl methacrylate	80-62-6	81597	USGS NWQL	GCM66	0.22	µg/L
Methyl *tert*-butyl ether	1634-04-4	78032	TAL-FL	GCM25	0.74	µg/L
″	″	″	USGS NWQL	GCM66	0.1	″
Methyl *tert*-pentyl ether	994-05-8	50005	USGS NWQL	GCM66	0.06	µg/L
Methylcyclohexane	108-87-2	77100	TAL-FL	GCM25	0.5	µg/L
Naphthalene	91-20-3	34696	TAL-FL	GM025	0.14–1.0	µg/L
″	″	″	USGS NWQL	GCM57	0.22	″
″	″	″	″	GCM66	0.18	″
n-Butyl methyl ketone	591-78-6	77103	TAL-FL	GCM25	3.1	µg/L
″	″	″	USGS NWQL	GCM66	0.4–0.46	
n-Butylbenzene	104-51-8	77342	USGS NWQL	GCM66	0.08	µg/L
Nitrobenzene	98-95-3	34447	TAL-FL	GM025	0.75–2.3	µg/L
″	″	″	USGS NWQL	GCM57	0.26	″
N-Nitrosodimethylamine	62-75-9	34438	USGS NWQL	GCM57	0.24	µg/L
N-Nitrosodi-n-propylamine	621-64-7	34428	TAL-FL	GM025	1.9–5.7	µg/L
″	″	″	USGS NWQL	GCM57	0.4	″
N-Nitrosodiphenylamine	86-30-6	34433	TAL-FL	GM025	0.2–0.63	µg/L
″	″	″	USGS NWQL	GCM57	0.28	″

Appendix Table 1-1. Methods, reporting levels, and laboratories used for chemical analysis for the Deepwater Horizon oil spill, Gulf of Mexico, 2010: organic contaminants in water.—Continued

[Method codes are from the National Water Information System (NWIS) database, and are defined in Table 1-6. **Abbreviations**: CASRN, Chemical Abstracts Services Registry Number; na, not applicable; NWQL, National Water Quality Laboratory, Denver, Colorado; OCRL, Organic Carbon Research Laboratory, Boulder, Colorado; pcode, parameter code from the U.S. Geological Survey NWIS database; TAL-CO, TestAmerica Laboratory, Denver, Colorado; TAL-FL, TestAmerica Laboratory, Pensacola, Florida; USGS, U.S. Geological Survey; µg/L, microgram per liter; mg/L, milligram per liter; ″, cell is identical to the cell immediately above]

Analyte	CASRN	Pcode	Laboratory	Method	Reporting level[1]	Units
n-Propylbenzene	103-65-1	77224	USGS NWQL	GCM66	0.036	µg/L
o-Cresol	95-48-7	77152	TAL-FL	GM025	1.9–5.7	µg/L
Oil and grease	na	00552	TAL-FL	GRV30	0.00018–2.1	mg/L
Oil range organics (C28–C35)	na	68082	TAL-FL	GC158	40.0–50	µg/L
Organics (C8–C36)	na	68081	TAL-FL	GC158	40.0–50	µg/L
o-Xylene	95-47-6	77135	USGS NWQL	GCM66	0.032	µg/L
Pentachlorophenol	87-86-5	39032	TAL-FL	GM025	2.7–8.3	µg/L
″	″	″	USGS NWQL	GCM56	0.6	″
Phenanthrene	85-01-8	34461	TAL-FL	GM025	0.15–0.46	µg/L
″	″	″	USGS NWQL	GCM57	0.32	″
Phenol	108-95-2	34694	TAL-FL	GM025	1.3–4.0	µg/L
″	″	″	USGS NWQL	GCM56	0.28	″
Pyrene	129-00-0	34469	TAL-FL	GM025	0.16–0.49	µg/L
″	″	″	USGS NWQL	GCM57	0.35	″
sec-Butylbenzene	135-98-8	77350	USGS NWQL	GCM66	0.034	µg/L
Styrene	100-42-5	77128	TAL-FL	GCM25	1.0	µg/L
″	″	″	USGS NWQL	GCM66	0.03–0.042	″
tert-Butyl ethyl ether	637-92-3	50004	USGS NWQL	GCM66	0.032	µg/L
tert-Butylbenzene	98-06-6	77353	USGS NWQL	GCM66	0.06	µg/L
Tetrachloroethene	127-18-4	34475	TAL-FL	GCM25	0.5–0.58	µg/L
″	″	″	USGS NWQL	GCM66	0.026	″
Tetrachloromethane	56-23-5	32102	TAL-FL	GCM25	0.5	µg/L
″	″	″	USGS NWQL	GCM66	0.052–0.06	″
Tetrahydrofuran	109-99-9	81607	USGS NWQL	GCM66	1.4	µg/L
Toluene	108-88-3	34010	TAL-CO	GCM25	0.17	µg/L
″	″	″	TAL-FL	GCM25	0.7	″
″	″	″	USGS NWQL	GCM66	0.018	″
trans-1,2-dichloroethene	156-60-5	34546	TAL-FL	GCM25	0.5	µg/L
″	″	″	USGS NWQL	GCM66	0.018	″
trans-1,3-dichloropropene	10061-02-6	34699	TAL-FL	GCM25	0.5	µg/L
″	″	″	USGS NWQL	GCM66	0.14	″
trans-1,4-Dichloro-2-butene	110-57-6	73547	USGS NWQL	GCM66	0.36	µg/L
Tribromomethane	75-25-2	32104	TAL-FL	GCM25	0.58	µg/L
″	″	″	USGS NWQL	GCM66	0.1	″
Trichloroethene	79-01-6	39180	TAL-FL	GCM25	0.5	µg/L
″	″	″	USGS NWQL	GCM66	0.022	″

Appendix Table 1-1. Methods, reporting levels, and laboratories used for chemical analysis for the Deepwater Horizon oil spill, Gulf of Mexico, 2010: organic contaminants in water.—Continued

[Method codes are from the National Water Information System (NWIS) database, and are defined in Table 1-6. **Abbreviations**: CASRN, Chemical Abstracts Services Registry Number; na, not applicable; NWQL, National Water Quality Laboratory, Denver, Colorado; OCRL, Organic Carbon Research Laboratory, Boulder, Colorado; pcode, parameter code from the U.S. Geological Survey NWIS database; TAL-CO, TestAmerica Laboratory, Denver, Colorado; TAL-FL, TestAmerica Laboratory, Pensacola, Florida; USGS, U.S. Geological Survey; µg/L, microgram per liter; mg/L, milligram per liter; ″, cell is identical to the cell immediately above]

Analyte	CASRN	Pcode	Laboratory	Method	Reporting level[1]	Units
Trichlorofluoromethane	75-69-4	34488	TAL-FL	GCM25	0.5–0.52	µg/L
″	″	″	USGS NWQL	GCM66	0.06–0.08	″
Trichloromethane	67-66-3	32106	TAL-FL	GCM25	0.5–0.6	µg/L
″	″	″	USGS NWQL	GCM66	0.03	″
Vinyl chloride	75-01-4	39175	TAL-FL	GCM25	0.5	µg/L
″	″	″	USGS NWQL	GCM66	0.06	″
Xylene (all isomers)	1330-20-7	81551	TAL-CO	GCM25	0.19	µg/L
″	″	″	TAL-FL	GCM25	1.6	″

[1]Range in reporting levels for that analyte, analyzed by that method and laboratory. Reporting level is defined as the concentration, set by a laboratory, and used for reporting analytical results that are determined to be less than the detection level.

Appendix Table 1-2. Methods, reporting levels, and laboratories used for chemical analysis for the Deepwater Horizon oil spill, Gulf of Mexico, 2010: organic contaminants in whole sediment.

[Method codes are from the National Water Information System (NWIS) database, and are defined in *Table 1-6*. **Abbreviations**: a, no reporting level because analyte was detected in all samples; CASRN, Chemical Abstracts Services Registry Number; FNU, formazin nephelometric unit; na, not applicable; NWQL, National Water Quality Laboratory, Denver, Colorado; pcode, parameter code from the U.S. Geological Survey NWIS database; SCL, Sediment Chemistry Laboratory, Atlanta, Georgia; TAL-CO, TestAmerica Laboratory, Denver, Colorado; TAL-FL, TestAmerica Laboratory, Pensacola, Florida; TAL-VT, TestAmerica Laboratory, Burlington, Vermont; USGS, U.S. Geological Survey; µg/kg, microgram per kilogram; µg/kg, microgram per kilogram as diphenylamine; mg/kg, milligram per kilogram; ″, cell is identical to the cell immediately above]

Analyte or parameter	CASRN	Pcode	Laboratory	Method code	Reporting level[1]	Units
1,2,4-Trichlorobenzene	120-82-1	64095	USGS NWQL	GCM13	14–120	µg/kg
1,2-Dimethylnaphthalene	573-98-8	64097	USGS NWQL	GCM13	14–120	µg/kg
1,6-Dimethylnaphthalene	575-43-9	64099	USGS NWQL	GCM13	14–120	µg/kg
1-Methylfluorene	1730-37-6	64100	USGS NWQL	GCM13	14–120	µg/kg
1-Methylnaphthalene	90-12-0	63165	TAL-VT	GM026	0.22–1.6	µg/kg
1-Methylphenanthrene	832-69-9	64101	USGS NWQL	GCM13	14–120	µg/kg
″	″	″	TAL-VT	GM026	0.19–1.2	″
1-Methylpyrene	2381-21-7	64102	USGS NWQL	GCM13	14–120	µg/kg
2,3,5-Trimethylnaphthalene	2245-38-7	68077	TAL-VT	GCM76	0.22–1.6	µg/kg
″	″	″	″	GM026	0.21–1.0	″
2,3,6-Trimethylnaphthalene	829-26-5	64103	USGS NWQL	GCM13	14–120	µg/kg
2,4,5-Trichlorophenol	95-95-4	62266	TAL-FL	GM027	36–270	µg/kg
2,4,6-Trichlorophenol	88-06-2	34624	TAL-FL	GM027	36–270	µg/kg
2,4-Dichlorophenol	120-83-2	34604	TAL-FL	GM027	36–270	µg/kg
2,4-Dimethylphenol	105-67-9	34609	TAL-FL	GM027	36–270	µg/kg
2,4-Dinitrophenol	51-28-5	34619	TAL-FL	GM027	320–2,400	µg/kg
2,4-Dinitrotoluene	121-14-2	34614	TAL-FL	GM027	36–270	µg/kg
2,6-Dimethylnaphthalene	581-42-0	63167	USGS NWQL	GCM13	14–120	µg/kg
″	″	″	TAL-VT	GM026	0.23–1.7	″
2,6-Dinitrotoluene	606-20-2	34629	TAL-FL	GM027	36–270	µg/kg
2-Chloronaphthalene	91-58-7	34584	TAL-FL	GM027	36–270	µg/kg
2-Chlorophenol	95-57-8	34589	TAL-FL	GM027	36–270	µg/kg
2-Ethylnaphthalene	939-27-5	64104	USGS NWQL	GCM13	14–120	µg/kg
2-Methyl-4,6-dinitrophenol	534-52-1	34660	TAL-FL	GM027	36–270	µg/kg
2-Methylanthracene	613-12-7	64105	USGS NWQL	GCM13	14–120	µg/kg
2-Methylnaphthalene	91-57-6	63168	TAL-FL	GM027	41–42	µg/kg
″	″	″	TAL-VT	GM026	0.27–2.0	″
2-Naphthylamine	91-59-8	64058	TAL-FL	GM027	36–270	µg/kg
2-Nitrophenol	88-75-5	34594	TAL-FL	GM027	36–270	µg/kg
3,3′-Dichlorobenzidine	91-94-1	34634	TAL-FL	GM027	36–270	µg/kg
3-Nitroaniline	99-09-2	62270	TAL-FL	GM027	36–270	µg/kg
4-Bromophenyl phenyl ether	101-55-3	34639	TAL-FL	GM027	36–270	µg/kg
4-Chloro-3-methylphenol	59-50-7	34455	TAL-FL	GM027	36–270	µg/kg
4-Chloroaniline	106-47-8	62271	TAL-FL	GM027	36–270	µg/kg
4-Chlorophenyl phenyl ether	7005-72-3	34644	TAL-FL	GM027	36–270	µg/kg
4H-Cyclopenta[d,e,f]phenanthrene	203-64-5	64106	USGS NWQL	GCM13	14–120	µg/kg

Appendix Table 1-2. Methods, reporting levels, and laboratories used for chemical analysis for the Deepwater Horizon oil spill, Gulf of Mexico, 2010: organic contaminants in whole sediment.—Continued

[Method codes are from the National Water Information System (NWIS) database, and are defined in *Table 1-6*. **Abbreviations**: a, no reporting level because analyte was detected in all samples; CASRN, Chemical Abstracts Services Registry Number; FNU, formazin nephelometric unit; na, not applicable; NWQL, National Water Quality Laboratory, Denver, Colorado; pcode, parameter code from the U.S. Geological Survey NWIS database; SCL, Sediment Chemistry Laboratory, Atlanta, Georgia; TAL-CO, TestAmerica Laboratory, Denver, Colorado; TAL-FL, TestAmerica Laboratory, Pensacola, Florida; TAL-VT, TestAmerica Laboratory, Burlington, Vermont; USGS, U.S. Geological Survey; µg/kg, microgram per kilogram; µg/kg, microgram per kilogram as diphenylamine; mg/kg, milligram per kilogram; ″, cell is identical to the cell immediately above]

Analyte or parameter	CASRN	Pcode	Laboratory	Method code	Reporting level[1]	Units
4-Nitroaniline	100-01-6	62273	TAL-FL	GM027	36–270	µg/kg
4-Nitrophenol	100-02-7	34649	TAL-FL	GM027	120–900	µg/kg
9,10-Anthraquinone	84-65-1	63181	USGS NWQL	GCM13	14–120	µg/kg
Acenaphthene	83-32-9	64108	TAL-FL	GM027	41–42	µg/kg
″	″	″	USGS NWQL	GCM13	14–120	″
″	″	″	TAL-VT	GM026	0.2–1.5	″
Acenaphthylene	208-96-8	64109	TAL-FL	GM027	41–42	µg/kg
″	″	″	USGS NWQL	GCM13	14–120	″
″	″	″	TAL-VT	GM026	0.19–1.4	″
Acetophenone	98-86-2	63178	TAL-FL	GM027	36–270	µg/kg
Anthracene	120-12-7	63180	TAL-FL	GM027	41–42	µg/kg
″	″	″	USGS NWQL	GCM13	14–120	″
″	″	″	TAL-VT	GM026	0.19–1.1	″
Atrazine	1912-24-9	63182	TAL-FL	GM027	36–270	µg/kg
Benzaldehyde	100-52-7	68046	TAL-FL	GM027	36–270	µg/kg
Benzo[a]anthracene	56-55-3	63610	TAL-FL	GM027	41–42	µg/kg
″	″	″	USGS NWQL	GCM13	14–120	″
″	″	″	TAL-VT	GM026	0.2–1.5	″
Benzo[a]pyrene	50-32-8	63183	TAL-FL	GM027	41–42	µg/kg
″	″	″	USGS NWQL	GCM13	14–120	″
″	″	″	TAL-VT	GM026	0.2–1.5	″
Benzo[b]fluoranthene	205-99-2	64111	TAL-FL	GM027	41–42	µg/kg
″	″	″	USGS NWQL	GCM13	14–120	″
″	″	″	TAL-VT	GM026	0.19–1.4	″
Benzo[e]pyrene	192-97-2	64112	USGS NWQL	GCM13	14–120	µg/kg
″	″	″	TAL-VT	GM026	0.31–2.3	″
Benzo[g,h,i]perylene	191-24-2	64113	USGS NWQL	GCM13	14–120	µg/kg
″	″	″	TAL-VT	GM026	0.21–1.6	″
Benzo[k]fluoranthene	207-08-9	64114	TAL-FL	GM027	41–42	µg/kg
″	″	″	USGS NWQL	GCM13	14–120	″
″	″	″	TAL-VT	GM026	0.32–2.4	″
Benzyl *n*-butylphthalate	85-68-7	68024	TAL-FL	GM027	36–270	µg/kg
Biphenyl	92-52-4	63752	TAL-FL	GM027	41–42	µg/kg
″	″	″	TAL-VT	GM026	0.23–1.7	″
bis(2-chloro-1-methylethyl) ether	108-60-1	68078	TAL-FL	GM025	36–270	µg/kg
Bis(2-chloroethoxy)methane	111-91-1	34281	TAL-FL	GM027	36–270	µg/kg

Appendix Table 1-2. Methods, reporting levels, and laboratories used for chemical analysis for the Deepwater Horizon oil spill, Gulf of Mexico, 2010: organic contaminants in whole sediment.—Continued

[Method codes are from the National Water Information System (NWIS) database, and are defined in *Table 1-6*. **Abbreviations**: a, no reporting level because analyte was detected in all samples; CASRN, Chemical Abstracts Services Registry Number; FNU, formazin nephelometric unit; na, not applicable; NWQL, National Water Quality Laboratory, Denver, Colorado; pcode, parameter code from the U.S. Geological Survey NWIS database; SCL, Sediment Chemistry Laboratory, Atlanta, Georgia; TAL-CO, TestAmerica Laboratory, Denver, Colorado; TAL-FL, TestAmerica Laboratory, Pensacola, Florida; TAL-VT, TestAmerica Laboratory, Burlington, Vermont; USGS, U.S. Geological Survey; µg/kg, microgram per kilogram; µg/kg, microgram per kilogram as diphenylamine; mg/kg, milligram per kilogram; ″, cell is identical to the cell immediately above]

Analyte or parameter	CASRN	Pcode	Laboratory	Method code	Reporting level[1]	Units
Bis(2-chloroethyl) ether	111-44-4	34276	TAL-FL	GM027	36–270	µg/kg
Bis-2-ethylhexylphthalate	117-81-7	39102	TAL-FL	GM027	36–270	µg/kg
C1-alkylated Chrysenes	41637-90-5	68083	TAL-VT	GM026	0.19–5.5	µg/kg
C1-alkylated Dibenzothiophenes	30995-64-3	68084	TAL-VT	GM026	0.19–5.5	µg/kg
C1-alkylated Fluoranthenes/pyrenes	na	64132	TAL-VT	GM026	0.22–5.5	µg/kg
C1-alkylated Fluorenes	26914-17-0	68085	TAL-VT	GM026	0.23–5.5	µg/kg
C1-alkylated Naphthalenes	1321-94-4	64122	TAL-VT	GM026	0.24–5.5	µg/kg
C1-alkylated Phenanthrenes/anthracenes	na	64127	TAL-VT	GM026	0.19–5.5	µg/kg
C2-alkylated Chrysenes	na	68086	TAL-VT	GM026	0.19–5.5	µg/kg
C2-alkylated Dibenzothiophenes	na	68087	TAL-VT	GM026	0.19–5.5	µg/kg
C2-alkylated Fluoranthenes/pyrenes	na	64133	TAL-VT	GM026	0.22–5.5	µg/kg
C2-alkylated Fluorenes	na	68088	TAL-VT	GM026	0.23–5.5	µg/kg
C2-alkylated Naphthalenes	na	64123	TAL-VT	GM026	0.24–5.5	µg/kg
C2-alkylated Phenanthrenes/anthracenes	na	64128	TAL-VT	GM026	0.19–5.5	µg/kg
C3-alkylated Chrysenes	na	68089	TAL-VT	GM026	0.19–5.5	µg/kg
C3-alkylated Dibenzothiophenes	na	68090	TAL-VT	GM026	0.19–5.5	µg/kg
C3-alkylated Fluoranthenes/pyrenes	na	64134	TAL-VT	GM026	0.22–5.5	µg/kg
C3-alkylated Fluorenes	na	68091	TAL-VT	GM026	0.23–5.5	µg/kg
C3-alkylated Naphthalenes	na	64124	TAL-VT	GM026	0.24–5.5	µg/kg
C3-alkylated Phenanthrenes/anthracenes	na	64129	TAL-VT	GM026	0.19–5.5	µg/kg
C4-alkylated Chrysenes	na	68092	TAL-VT	GM026	0.19–5.5	µg/kg
C4-alkylated Dibenzothiophenes	na	68093	TAL-VT	GM026	0.19–5.5	µg/kg
C4-alkylated Naphthalenes	na	64125	TAL-VT	GM026	0.24–5.5	µg/kg
C4-alkylated Phenanthrenes/anthracenes	na	64130	TAL-VT	GM026	0.19–5.5	µg/kg
Caprolactam	105-60-2	63753	TAL-FL	GM027	36–270	µg/kg
Carbazole	86-74-8	63194	TAL-FL	GM027	36–270	µg/kg
″	″	″	USGS NWQL	GCM13	14–120	″
Chrysene	218-01-9	64115	TAL-FL	GM027	41–42	µg/kg
″	″	″	USGS NWQL	GCM13	14–120	″
″	″	″	TAL-VT	GM026	0.19–1.3	″
Dibenzo[a,h]anthracene	53-70-3	64116	TAL-FL	GM027	41–42	µg/kg
″	″	″	USGS NWQL	GCM13	14–120	″
″	″	″	TAL-VT	GM026	0.19–1.0	″
Dibenzofuran	132-64-9	62275	TAL-FL	GM027	36–270	µg/kg
Dibenzothiophene	132-65-0	64117	USGS NWQL	GCM13	14–120	µg/kg
″	″	″	TAL-VT	GM026	0.19–1.2	″

Appendix Table 1-2. Methods, reporting levels, and laboratories used for chemical analysis for the Deepwater Horizon oil spill, Gulf of Mexico, 2010: organic contaminants in whole sediment.—Continued

[Method codes are from the National Water Information System (NWIS) database, and are defined in *Table 1-6*. **Abbreviations**: a, no reporting level because analyte was detected in all samples; CASRN, Chemical Abstracts Services Registry Number; FNU, formazin nephelometric unit; na, not applicable; NWQL, National Water Quality Laboratory, Denver, Colorado; pcode, parameter code from the U.S. Geological Survey NWIS database; SCL, Sediment Chemistry Laboratory, Atlanta, Georgia; TAL-CO, TestAmerica Laboratory, Denver, Colorado; TAL-FL, TestAmerica Laboratory, Pensacola, Florida; TAL-VT, TestAmerica Laboratory, Burlington, Vermont; USGS, U.S. Geological Survey; µg/kg, microgram per kilogram; µg/kg, microgram per kilogram as diphenylamine; mg/kg, milligram per kilogram; ″, cell is identical to the cell immediately above]

Analyte or parameter	CASRN	Pcode	Laboratory	Method code	Reporting level[1]	Units
Diethylphthalate	84-66-2	63202	TAL-FL	GM027	36–270	µg/kg
″	″	″	USGS NWQL	GCM13	14–120	″
Dimethylphthalate	131-11-3	68027	TAL-FL	GM027	36–270	µg/kg
Di-*n*-buyl phthalate	84-74-2	68025	TAL-FL	GM027	36–270	µg/kg
Di-*n*-octyl phthalate	117-84-0	68026	TAL-FL	GM027	36–270	µg/kg
Fluoranthene	206-44-0	63208	TAL-FL	GM027	41–42	µg/kg
″	″	″	USGS NWQL	GCM13	14–120	″
″	″	″	TAL-VT	GM026	0.21–1.6	″
Fluorene	86-73-7	64107	TAL-FL	GM027	41–42	µg/kg
″	″	″	USGS NWQL	GCM13	14–120	″
″	″	″	TAL-VT	GM026	0.22–1.6	″
Hexachlorobenzene	118-74-1	63631	TAL-FL	GM027	110–820	µg/kg
″	″	″	USGS NWQL	GCM13	14–120	″
Hexachlorobutadiene	87-68-3	39705	TAL-FL	GM027	36–270	µg/kg
Hexachlorocyclopentadiene	77-47-4	49489	TAL-FL	GM027	72–540	µg/kg
Hexachloroethane	67-72-1	34399	TAL-FL	GM027	110–820	µg/kg
Indeno[1,2,3-cd]pyrene	193-39-5	64118	TAL-FL	GM027	41–42	µg/kg
″	″	″	USGS NWQL	GCM13	14–120	″
″	″	″	TAL-VT	GM026	0.19–1.2	″
Isophorone	78-59-1	63212	TAL-FL	GM027	36–270	µg/kg
m-plus *p*-Cresol	65794-96-9	64061	TAL-FL	GM027	36–270	µg/kg
Naphthalene	91-20-3	63220	TAL-FL	GM027	41–42	µg/kg
″	″	″	USGS NWQL	GCM13	14–120	″
″	″	″	TAL-VT	GM026	0.23–1.7	″
Nitrobenzene	98-95-3	34450	TAL-FL	GM027	36–270	µg/kg
N-Nitrosodi-n-propylamine	621-64-7	34431	TAL-FL	GM027	120–900	µg/kg
N-Nitrosodiphenylamine	86-30-6	68029	TAL-FL	GM027	36–270	µg/kg DPA
o-Cresol	95-48-7	62268	TAL-FL	GM027	36–270	µg/kg
Oil and grease	na	63716	TAL-CO	GRV29	96–470	mg/kg
″	″	″	TAL-FL	GRV29	44–330	″
Pentachloroanisole	1825-21-4	64119	USGS NWQL	GCM13	14–120	µg/kg
Pentachloronitrobenzene	82-68-8	63650	USGS NWQL	GCM13	14–120	µg/kg
Pentachlorophenol	87-86-5	63223	TAL-FL	GM027	72–540	µg/kg
Percent moisture	na	70320	TAL-CO	GRV33	0.1	Percent
″	″	″	TAL-FL	GRV33	0.1	″
″	″	″	TAL-VT	GRV33	0.25	″

Appendix Table 1-2. Methods, reporting levels, and laboratories used for chemical analysis for the Deepwater Horizon oil spill, Gulf of Mexico, 2010: organic contaminants in whole sediment.—Continued

[Method codes are from the National Water Information System (NWIS) database, and are defined in *Table 1-6*. **Abbreviations**: a, no reporting level because analyte was detected in all samples; CASRN, Chemical Abstracts Services Registry Number; FNU, formazin nephelometric unit; na, not applicable; NWQL, National Water Quality Laboratory, Denver, Colorado; pcode, parameter code from the U.S. Geological Survey NWIS database; SCL, Sediment Chemistry Laboratory, Atlanta, Georgia; TAL-CO, TestAmerica Laboratory, Denver, Colorado; TAL-FL, TestAmerica Laboratory, Pensacola, Florida; TAL-VT, TestAmerica Laboratory, Burlington, Vermont; USGS, U.S. Geological Survey; µg/kg, microgram per kilogram; µg/kg, microgram per kilogram as diphenylamine; mg/kg, milligram per kilogram; ″, cell is identical to the cell immediately above]

Analyte or parameter	CASRN	Pcode	Laboratory	Method code	Reporting level[1]	Units
Perylene	198-55-0	64120	USGS NWQL	GCM13	14–120	µg/kg
″	″	″	TAL-VT	GM026	0.19–1.0	″
Petroleum hydrocarbons	na	63717	TAL-CO	00138	200–1,000	mg/kg
Phenanthrene	85-01-8	63224	TAL-FL	GM027	41–42	µg/kg
″	″	″	USGS NWQL	GCM13	14–120	″
″	″	″	TAL-VT	GM026	0.19–1.1	″
Phenanthridine	229-87-8	64121	USGS NWQL	GCM13	14–120	µg/kg
Phenol	108-95-2	63225	TAL-FL	GM027	36–270	µg/kg
Pyrene	129-00-0	63227	TAL-FL	GM027	41–42	µg/kg
″	″	″	USGS NWQL	GCM13	14–120	″
″	″	″	TAL-VT	GM026	0.2–1.5	″
Total organic carbon	na	01395	USGS SCL	CMB01	0.1	Percent
Total organic carbon	na	62289	TAL-VT	CMB07	990–1,500	mg/kg
Turbidity	na	63680	na	TS087	a	FNU

[1]Range in reporting levels for that analyte, analyzed by that method and laboratory. Reporting level is defined as the concentration set by a laboratory and used for reporting analytical results that are determined to be less than the detection level.

Appendix Table 1-3. Methods, reporting levels, and laboratories used for chemical analysis for the Deepwater Horizon oil spill, Gulf of Mexico, 2010: trace and major elements and nutrients in water.

[Method codes are from the National Water Information System (NWIS) database, and are defined in *Table 1-6*. **Abbreviations**: a, no reporting level because analyte was detected in all samples; calc, calculated; CASRN, Chemical Abstracts Services Registry Number; N, nitrogen; na, not applicable; NH_4, ammonia; NWQL, National Water-Quality Laboratory, Denver, Colorado; OCRL, Organic Carbon Research Laboratory, Boulder, Colorado; pcode, parameter code from the U.S. Geological Survey NWIS database; TAL-FL, TestAmerica Laboratory, Pensacola, Florida; USGS, U.S. Geological Survey; µg/L, microgram per liter; µS/cm, microSiemens per centimeter at 25 degrees Celsius; mg/L, milligram per liter; mg/L as N, milligram per liter as nitrogen; mg/L as NH_4, milligram per liter as ammonia; ″, cell is identical to the cell immediately above]

Analyte	CASRN	Pcode	Laboratory	Method code	Reporting level[1]	Units
Aluminum	7429-90-5	01105	USGS NWQL	PLA15	50	µg/L
″	″	″	″	PLM48	5.6	″
Ammonia as N	na	00610	TAL-FL	CL016	0.02	mg/L as N
″	″	″	USGS NWQL	CL017	0.04	″
Ammonia as NH_4	na	71845	calc	ALGOR	0.026–0.052	mg/L as NH_4
Ammonia plus organic nitrogen as N	na	00625	TAL-FL	KJ001	0.12–0.16	mg/L as N
″	″	″	USGS NWQL	KJ008	0.05–0.1	″
Antimony	7440-36-0	01097	TAL-FL	PLA17	10.0–100	µg/L
Arsenic	7440-38-2	01002	TAL-FL	PLA17	4.0–40.0	µg/L
″	″	″	USGS NWQL	PLM11	0.18	″
Barium	7440-39-3	01007	TAL-FL	PLA17	1.0–10.0	µg/L
″	″	″	USGS NWQL	PLA15	0.6	″
Beryllium	7440-41-7	01012	USGS NWQL	PLA15	0.38	µg/L
Boron	7440-42-8	00999	TAL-FL	PLA17	5.0–50	µg/L
Cadmium	7440-43-9	01027	TAL-FL	PLA17	1.0–10.0	µg/L
″	″	″	USGS NWQL	PLM47	0.04	″
Calcium	7440-70-2	00916	TAL-FL	PLA17	0.03–0.3	mg/L
″	″	″	USGS NWQL	PLA15	0.04	″
Chromium	7440-47-3	01034	TAL-FL	PLA17	2.0–20	µg/L
″	″	″	USGS NWQL	PLM11	0.42	″
Cobalt	7440-48-4	01037	TAL-FL	PLA17	3.0–30.0	µg/L
″	″	″	USGS NWQL	PLM11	0.04	″
Copper	7440-50-8	01042	TAL-FL	PLA17	2.0–20	µg/L
″	″	″	USGS NWQL	PLA15	3.8	″
Dissolved nitrogen	na	00602	calc	ALGOR	0.14	mg/L
″	″	″	USGS OCRL	PCL01	a	″
Iron	7439-89-6	01045	USGS NWQL	PLA15	9.2	µg/L
Lead	7439-92-1	01051	TAL-FL	PLA17	2.0–20	µg/L
″	″	″	USGS NWQL	PLM48	0.06	″
Lithium	7439-93-2	01132	USGS NWQL	PLA15	0.08	µg/L
Magnesium	7439-95-4	00927	USGS NWQL	PLA15	0.0080	mg/L
Manganese	7439-96-5	01055	TAL-FL	PLA17	1.0–10.0	µg/L
″	″	″	USGS NWQL	PLA15	0.5	″
Mercury	7439-97-6	71900	TAL-FL	CV021	0.07	µg/L
Molybdenum	7439-98-7	01062	TAL-FL	PLA17	2.0–20	µg/L
″	″	″	USGS NWQL	PLM48	0.1	″

Appendix Table 1-3. Methods, reporting levels, and laboratories used for chemical analysis for the Deepwater Horizon oil spill, Gulf of Mexico, 2010: trace and major elements and nutrients in water.—Continued

[Method codes are from the National Water Information System (NWIS) database, and are defined in *Table 1-6*. **Abbreviations**: a, no reporting level because analyte was detected in all samples; calc, calculated; CASRN, Chemical Abstracts Services Registry Number; N, nitrogen; na, not applicable; NH_4, ammonia; NWQL, National Water-Quality Laboratory, Denver, Colorado; OCRL, Organic Carbon Research Laboratory, Boulder, Colorado; pcode, parameter code from the U.S. Geological Survey NWIS database; TAL-FL, TestAmerica Laboratory, Pensacola, Florida; USGS, U.S. Geological Survey; µg/L, microgram per liter; µS/cm, microSiemens per centimeter at 25 degrees Celsius; mg/L, milligram per liter; mg/L as N, milligram per liter as nitrogen; mg/L as NH_4, milligram per liter as ammonia; ″, cell is identical to the cell immediately above]

Analyte	CASRN	Pcode	Laboratory	Method code	Reporting level[1]	Units
Nickel	7440-02-0	01067	TAL-FL	PLA17	3.0–75.0	µg/L
″	″	″	USGS NWQL	PLM11	0.36	″
Organic nitrogen	na	00605	calc	ALGOR	0.05–3.1	mg/L
Phosphorus as P	7723-14-0	00665	TAL-FL	CL159	0.032	mg/L
″	″	″	USGS NWQL	AKP01	0.02	″
″	″	″	″	CL021	0.0040	″
″	″	″	″	KJ009	0.04	″
Potassium	7440-09-7	00937	TAL-FL	PLA17	0.1–20	mg/L
″	″	″	USGS NWQL	PLO01	0.08	″
Selenium	7782-49-2	01147	TAL-FL	PLA17	4.0–40.0	µg/L
″	″	″	USGS NWQL	PLM11	0.1	″
Silver	7440-22-4	01077	TAL-FL	PLA17	2.0–20	µg/L
″	″	″	USGS NWQL	PLM48	0.016	″
Sodium	7440-23-5	00929	USGS NWQL	PLA15	0.24	mg/L
Specific conductance	na	90095	USGS NWQL	WHT03	5.0	µS/cm
Strontium	7440-24-6	01082	USGS NWQL	PLA15	0.6	µg/L
Thallium	7440-28-0	01059	TAL-FL	PLA17	4.0–40.0	µg/L
Vanadium	7440-62-2	00985	TAL-FL	PLA17	2.0–20	µg/L
Zinc	7440-66-6	01092	TAL-FL	PLA17	8.0–80.0	µg/L
″	″	″	USGS NWQL	PLA15	4.0	″

[1]Range in reporting levels for that analyte, analyzed by that method and laboratory. Reporting level is defined as the concentration set by a laboratory and used for reporting analytical results that are determined to be less than the detection level.

Appendix Table 1-4. Methods, reporting levels, and laboratories used for chemical analysis for the Deepwater Horizon oil spill, Gulf of Mexico, 2010: trace and major elements and nutrients in whole sediment.

[Method codes are from the National Water Information System (NWIS) database, and are defined in *Table 1-6*. **Abbreviations**: a, no reporting level because analyte was detected in all samples; CASRN, Chemical Abstracts Services Registry Number; na, not applicable; NWQL, National Water Quality Laboratory, Denver, Colorado; pcode, parameter code from the U.S. Geological Survey NWIS database; SCL, Sediment Chemistry Laboratory, Atlanta, Georgia; USGS, U.S. Geological Survey; mg/kg, milligram per kilogram]

Analyte	CASRN	Pcode[1]	Laboratory	Method code	Reporting level[1]	Units
Aluminum	7429-90-5	01396	USGS SCL	PLA20	0.1–0.2	Percent
Antimony	7440-36-0	01098	USGS SCL	HY017	0.1–0.2	mg/kg
Arsenic	7440-38-2	01003	USGS SCL	HY017	a	mg/kg
Barium	7440-39-3	01376	USGS SCL	PLA20	1.0–2.0	mg/kg
Beryllium	7440-41-7	01377	USGS SCL	PLA20	0.1–0.2	mg/kg
Cadmium	7440-43-9	01378	USGS SCL	AA095	0.1–0.2	mg/kg
Calcium	7440-70-2	01476	USGS SCL	PLA20	0.1–0.2	Percent
Chromium	7440-47-3	01379	USGS SCL	PLA20	1.0–2.0	mg/kg
Cobalt	7440-48-4	01380	USGS SCL	PLA20	1.0–2.0	mg/kg
Copper	7440-50-8	01381	USGS SCL	PLA20	1.0–2.0	mg/kg
Iron	7439-89-6	01468	USGS SCL	PLA20	0.1–0.2	Percent
Lead	7439-92-1	01382	USGS SCL	AA095	1.0	mg/kg
Lithium	7439-93-2	01383	USGS SCL	PLA20	1.0–2.0	mg/kg
Magnesium	7439-95-4	01477	USGS SCL	PLA20	0.1–0.2	Percent
Manganese	7439-96-5	01384	USGS SCL	PLA20	1.0	mg/kg
Mercury	7439-97-6	01385	USGS SCL	CV025	0.01	mg/kg
Molybdenum	7439-98-7	01386	USGS SCL	PLA20	1.0–2.0	mg/kg
Nickel	7440-02-0	01387	USGS SCL	PLA20	1.0–2.0	mg/kg
Phosphorus	7723-14-0	01388	USGS SCL	PLA20	a	mg/kg
Potassium	7440-09-7	01475	USGS SCL	PLA20	0.1–0.2	Percent
Selenium	7782-49-2	01148	USGS SCL	HY017	0.1–0.2	mg/kg
Silver	7440-22-4	01389	USGS SCL	AA095	0.5–1.0	mg/kg
Sodium	7440-23-5	01474	USGS SCL	PLA20	0.1	Percent
Strontium	7440-24-6	01390	USGS SCL	PLA20	1.0	mg/kg
Sulfur	7704-34-9	01398	USGS SCL	PLA20	0.01	Percent
Thallium	7440-28-0	34480	USGS SCL	PLA20	50–100	mg/kg
Tin	7440-31-5	01391	USGS SCL	PLA20	1.0–2.0	mg/kg
Titanium	7440-32-6	01469	USGS SCL	PLA20	0.01–0.02	Percent
Total carbon	7440-44-0	01394	USGS SCL	CMB01	0.1	Percent
Total nitrogen	na	01397	USGS SCL	CMB01	0.01–0.1	Percent
Uranium	7440-61-1	01392	USGS SCL	PLA20	50–100	mg/kg
Vanadium	7440-62-2	01088	USGS SCL	PLA20	1.0–2.0	mg/kg
Zinc	7440-66-6	01393	USGS SCL	PLA20	1.0–2.0	mg/kg

[3]Range in reporting levels for that analyte, analyzed by that method and laboratory. Reporting level is defined as the concentration set by a laboratory and used for reporting analytical results that are determined to be less than the detection level.

Appendix Table 1-5. Methods, reporting levels, and laboratories used for chemical analysis for the Deepwater Horizon oil spill, Gulf of Mexico, 2010: trace and major elements and nutrients in the less than 63-micrometer sediment fraction.

[Method codes are from the National Water Information System (NWIS) database, and are defined in *Table 1-6*. **Abbreviations**: a, no reporting level because analyte was detected in all samples; CASRN, Chemical Abstracts Services Registry Number; na, not applicable; pcode, parameter code from the U.S. Geological Survey NWIS database; Percent of sediment less than 63 micrometers, percent of total sediment that passes through a 63-micrometer sieve; SCL, Sediment Chemistry Laboratory, Atlanta, Georgia; USGS, U.S. Geological Survey; mg/kg, milligram per kilogram; <, less than]

Analyte	CASRN	Pcode	Laboratory	Method code	Reporting level[1]	Units
Aluminum	7429-90-5	03926	USGS SCL	PLA20	0.5–5.0	Percent
Antimony	7440-36-0	03929	USGS SCL	HY017	0.3–5.0	mg/kg
Arsenic	7440-38-2	03933	USGS SCL	HY017	a	mg/kg
Barium	7440-39-3	03921	USGS SCL	PLA20	a	mg/kg
Beryllium	7440-41-7	03938	USGS SCL	PLA20	0.1–5.0	mg/kg
Cadmium	7440-43-9	03925	USGS SCL	AA095	0.1–3.8	mg/kg
Calcium	7440-70-2	03954	USGS SCL	PLA20	0.3–5.0	Percent
Chromium	7440-47-3	03949	USGS SCL	PLA20	9.0–50	mg/kg
Cobalt	7440-48-4	03950	USGS SCL	PLA20	1.0–50	mg/kg
Copper	7440-50-8	03927	USGS SCL	PLA20	50	mg/kg
Inorganic carbon	7440-44-0	03941	USGS SCL	CMB01	a	Percent
Iron	7439-89-6	03930	USGS SCL	PLA20	0.2–5.0	Percent
Lead	7439-92-1	03952	USGS SCL	AA095	1.0–25	mg/kg
Lithium	7439-93-2	03939	USGS SCL	PLA20	5.0–50	mg/kg
Magnesium	7439-95-4	03932	USGS SCL	PLA20	5.0	Percent
Manganese	7439-96-5	03951	USGS SCL	PLA20	a	mg/kg
Mercury	7439-97-6	03934	USGS SCL	CV025	0.01	mg/kg
Molybdenum	7439-98-7	03947	USGS SCL	PLA20	1.0–50	mg/kg
Nickel	7440-02-0	03937	USGS SCL	PLA20	25–50	mg/kg
Nitrogen	na	03953	USGS SCL	CMB01	a	Percent
Organic carbon	na	03923	USGS SCL	CMB01	a	Percent
Percent of sediment less than 63 micrometers	na	69600	USGS SCL	na	1.0	Percent
Phosphorus	7723-14-0	03946	USGS SCL	PLA20	1.0	mg/kg
Potassium	7440-09-7	03935	USGS SCL	PLA20	0.5–5.0	Percent
Selenium	7782-49-2	03928	USGS SCL	HY017	0.3–5.0	mg/kg
Silver	7440-22-4	03922	USGS SCL	AA095	0.5–26.0	mg/kg
Sodium	7440-23-5	03943	USGS SCL	PLA20	1.5–5.0	Percent
Strontium	7440-24-6	03944	USGS SCL	PLA20	a	mg/kg
Sulfur	7704-34-9	03945	USGS SCL	PLA20	a	Percent
Thallium	7440-28-0	03940	USGS SCL	PLA20	50–2,500	mg/kg
Tin	7440-31-5	03931	USGS SCL	PLA20	1.0–50	mg/kg
Titanium	7440-32-6	03948	USGS SCL	PLA20	0.01–0.5	Percent
Uranium	7440-61-1	03936	USGS SCL	PLA20	50–2,500	mg/kg
Vanadium	7440-62-2	03924	USGS SCL	PLA20	5.0–25	mg/kg
Zinc	7440-66-6	03942	USGS SCL	PLA20	20	mg/kg

[1]Range in reporting levels for that analyte, analyzed by that method and laboratory. Reporting level is defined as the concentration set by a laboratory and used for reporting analytical results that are determined to be less than the detection level.

Appendix Table 1-6. Methods used for chemical analysis in the Deepwater Horizon oil spill, Gulf of Mexico, 2010, study.

[Method codes are from the National Water Information System (NWIS) database. Method identifiers are from the publication by the originating agency. Full citations are listed in Appendix 1, part 7. **Abbreviations**: ASE, accelerated solvent extraction; ASF, automated-segmented flow; CVAA, cold vapor atomic absorption spectrometry; DODEC, Department of Defense Environmental Conservation; FNU, formazin nephelometric unit; GC/MS, gas chromatograpjy with mass spectrometric detection; GRO, Gasoline range organics; H_2SO_4, sulfuric acid; HEM, *n*-hexane extractable material; $HgSO_4$, mercury(II) sulfate; ICP-AES, Inductively Coupled Plasma-Atomic Emission Spectrometry; ICP-MS, Inductively Coupled Plasma-Mass Spectrometry; ICP-OES, Inductively Coupled Plasma Optical Emission Spectrometry; K_2SO_4, potassium sulfate; NWQL, National Water Quality Laboratory; PAH, polycyclic aromatic hydrocarbon; VOC, volatile organic compound; WRI, Water-Resources Investigation report; WSC, Water Science Center; –, not available]

Method code	Method identifier	Method description	Citation
00138	9071B	USEPA method 9071B, but analyte not listed in method	U.S. Environmental Protection Agency (1998).
AA095	–	Elements in bed sediment by Atomic Absorption Spectrophotometry, Georgia WSC Sediment Chemistry Lab	Horowitz and others (2001).
AA095	–	Elements in bed sediment by Atomic Absorption Spectrophotometry, Georgia WSC Sediment Chemistry Lab	Fishman and Friedman (1989a).
AKP01	I-4650-03	Nutrients, unfiltered water, acidified, alkaline-persulfate digestion, continuous flow colorimetry	Patton and Kryskalla (2003).
ALGOR	–	Computation by NWIS algorithm	Algorithms for calculated parameters, in U.S. Geological Survey (2006).
CL016	350.1	Ammonia in unfiltered water by automated phenate colorimetry	–
CL017	350.1	Nutrients, unfiltered water, colorimetric	–
CL021	365.1	Phosphorus, unfiltered water, acidified, acid-persulfate digestion, continuous flow colorimetry	–
CL159	365.4	Phosphorus, unfiltered water, automated, block digester, digestion with H_2SO_4, K_2SO_4 and $HgSO_4$, colorimetry (USEPA 365.4; DODEC program)	–
CMB01	–	Elements in bed sediment by Combustion, Georgia WSC Sediment Chemistry Lab	Horowitz and others (2001).
CMB01	–	Elements in bed sediment by Combustion, Georgia WSC Sediment Chemistry Lab	Fishman and Friedman (1989a).
CMB07	–	Determination of Total Organic Carbon in Sediment (Lloyd Kahn Method)	Kahn (1988).
COMB4	5310B	Combustion-Infrared Method	Standard Methods for the Examination of Water and Wastewater (2006).
CV021	7470A	Mercury recoverable from unfiltered water by CVAA (DODEC, USEPA 7470A)	U.S. Environmental Protection Agency [variously dated].
CV025	–	Elements in bed sediment by CVAA, Georgia WSC Sediment Chemistry Lab	Horowitz and others (2001).
CV025	–	Elements in bed sediment by CVAA, Georgia WSC Sediment Chemistry Lab	Fishman and Friedman (1989a).
GC155	8015B	GRO compounds in unfiltered water by gas chromatography with flame-ionization detection	–
GC158	8015C	Petroleum hydrocarbons in unfiltered water by gas chromatography with flame-ionization detection (USEPA method 8015C; DODEC program)	–
GCI01	8015B	Nonhalogenated organics in unfiltered water by gas chromatography with flame ionization detection	U.S. Environmental Protection Agency (1996b).
GCI02	8015B	GROs, water, unfiltered, by gas chromatography with flame ionization detection (USEPA Method 8015B)	U.S. Environmental Protection Agency (1996b).
GCM13	O-5506-06	New Method for PAH compounds and their homologs in solids by ASE extraction and GC/MS analysis; WRI being written	Zaugg and others (2006).
GCM25	8260B	VOCs by GC/MS Capillary Column Technique	U.S. Environmental Protection Agency (1996c).
GCM55	O-3116-87	Base/neutral and acid extractable compounds, unfiltered water, methylene chloride extractable, methylene chloride extractable, GC/MS	Fishman (1993).
GCM56	O-3117-83	Base/neutral and acid extractable compounds, unfiltered water, methylene chloride extractable, methylene chloride extractable, GC/MS	Wershaw and others (1987a).

Appendix Table 1-6. Methods used for chemical analysis in the Deepwater Horizon oil spill, Gulf of Mexico, 2010, study.—Continued

[Method codes are from the National Water Information System (NWIS) database. Method identifiers are from the publication by the originating agency. Full citations are listed in Appendix 1, part 7. **Abbreviations**: ASE, accelerated solvent extraction; ASF, automated-segmented flow; CVAA, cold vapor atomic absorption spectrometry; DODEC, Department of Defense Environmental Conservation; FNU, formazin nephelometric unit; GC/MS, gas chromatograpjy with mass spectrometric detection; GRO, Gasoline range organics; H_2SO_4, sulfuric acid; HEM, *n*-hexane extractable material; $HgSO_4$, mercury(II) sulfate; ICP-AES, Inductively Coupled Plasma-Atomic Emission Spectrometry; ICP-MS, Inductively Coupled Plasma-Mass Spectrometry; ICP-OES, Inductively Coupled Plasma Optical Emission Spectrometry; K_2SO_4, potassium sulfate; NWQL, National Water Quality Laboratory; PAH, polycyclic aromatic hydrocarbon; VOC, volatile organic compound; WRI, Water-Resources Investigation report; WSC, Water Science Center; –, not available]

Method code	Method identifier	Method description	Citation
GCM57	O-3118-83	Base/neutral and acid extractable compounds, unfiltered water, methylene chloride extractable, methylene chloride extractable, GC/MS (NWQL Schedule 1494)	Wershaw and others (1987b).
GCM66	O-4127-96	VOCs, unfiltered water, acidified, purge and trap gas chromatography/mass spectrometry	Connor and others (1998).
GCM75	8260B	VOCs, water, unfiltered, by GC/MS	U.S. Environmental Protection Agency [variously dated].
GCM76	8270C	Semi-volatile organic compounds, water, unfiltered, by GC/MS (USEPA method 8270C; DODEC program)	U.S. Environmental Protection Agency [variously dated].
GCM94	8260B	VOCs, water, unfiltered, GC/MS (DODEC, USEPA Method 8260B)	U.S. Environmental Protection Agency (1996c).
GM025	8270D	Semi-volatile organic compounds, water, unfiltered, by GC/MS (USEPA method 8270D; DODEC program)	–
GM026	8270C SIM	Semi-volatile organic compounds, water, unfiltered, by GC/MS in selected ion monitoring mode	–
GM027	8270D	Semi-volatile organic compounds, solids, recoverable by GC/MS (USEPA 8270D; DODEC program)	–
GRV29	9071B	HEM	U.S. Environmental Protection Agency (1998).
GRV30	1664A	HEM by extraction and gravimetry (see attachment 1 in the reference)	U.S. Environmental Protection Agency (1999).
GRV33	–	Moisture content, by weight	–
HY017	–	Elements in bed sediment by Hydride Generation ICP-AES, Georgia WSC Sediment Chemistry Lab	Horowitz and others (2001).
HY017	–	Elements in bed sediment by Hydride Generation ICP-AES, Georgia WSC Sediment Chemistry Lab	Fishman and Friedman (1989a).
KJ001	351.2	Ammonia plus organic nitrogen in unfiltered water by Kjeldahl analysis	–
KJ008	I-4515-91	Ammonia plus organic nitrogen, unfiltered water, acidified, Kjeldahl digestion, continuous flow colorimetry	Patton and Truitt (2000).
KJ009	I-4610-91	Total phosphorus in unfiltered water by Microkjeldahl Digestion, and ASF Dialysis and Colorimetry (unfiltered sample, preserved by chilling only prior to 1/1/1999, preserved with sulfuric acid 1/1/1999 to present; see Office of Water Quality Tech Memo 99.04)	Patton and Truitt (1992).
PCL01	–	Total nitrogen in filtered water by pyrochemiluminescence (California WSC)	Merriam and others (1996).
PLA15	I-4471-97	Metals, unfiltered water, ICP-AES	Garbarino and Struzeski (1998).
PLA17	6010B	Trace elements in unfiltered water by ICP-AES (USEPA method 6010B; DODEC program)	U.S. Environmental Protection Agency (1996a).
PLA20	–	Elements in bed sediment by ICP-AES, Georgia WSC Sediment Chemistry Lab	Horowitz and others (2001)
PLA20	–	Elements in bed sediment by ICP-AES, Georgia WSC Sediment Chemistry Lab	Fishman and Friedman (1989a).
PLM11	I-4020-05	Elements in unfiltered water using collision/reaction cell ICP-MS	Garbarino and others (2006).
PLM47	I-4471-97	Metals, unfiltered water, ICP-MS	Garbarino and Struzeski (1998).
PLM48	I-4471-97	Metals, unfiltered water, ICP-MS	Garbarino and Struzeski (1998).
PLO01	–	Potassium recoverable from unfiltered water by ICP-OES	–
TS087	7027	YSI Environmental, sensor model 6136, several multiparameter instruments, FNU	–
WHT03	I-2781-85	Specific conductance, lab, automated, by Wheatstone bridge	Fishman, M.J., and Friedman, L.C. (1989b).

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